

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

1.7622
A9052
Oct. 1944

June 1, 1944
Revised October 1, 1944

THE USE OF AERIAL PHOTOGRAPHS IN FOREST SURVEYS

A Selected Bibliography

(for restricted distribution)

ALLEGHENY FOREST EXPERIMENT STATION

Philadelphia, 7, Pa.

United States Department of Agriculture

US
Forest Service

FOREWORD

The Northeast, with a gross area of 112 million acres, of which about 60 million is estimated to be in forest, is the most important forest region in the United States still uncovered by the nation-wide Forest Survey. The intensive industrial development in this region, the density of population with its vital need for recreation, and the necessity for watershed protection require an intensive forest survey. Data should be compiled by small units — certainly no larger than counties, and some items should probably be reported for individual towns. Experience during the last few years indicates that such a survey, if it is to be economical and reasonably accurate, must rely heavily upon aerial photographs.

The Allegheny Forest Experiment Station is aware that aerial photographs have been used in forest surveys for more than twenty-five years. A preliminary examination of literature uncovered over 200 articles and reports which are listed in the attached bibliography. Before completing plans for the forest survey of the Northeast, the station wishes to thoroughly review the work done by others in this field. We would, therefore, like to have suggestions as to articles and unpublished manuscripts which have not come to our attention. Corrections and more complete detail on the articles listed will also be appreciated.

This bibliography, although probably still incomplete, attempts to cover the field of the use of aerial photography in forest surveys. In addition to general references it includes articles dealing with land classification, such as the delineation and estimation of forest areas; the condition of the forest, its site quality and species composition, i.e., forest type classification. It also embraces the field of estimating timber volumes through the use of various photogrammetric methods, and describes equipment which has been designed or adapted for this kind of work. References to the use of aerial photography in the development of logging plans have also been included for their value in surveys of individual operations. The bibliography is arranged chronologically, but an author index has been included for convenience.

This bibliography has been compiled by John Buttrick under the supervision of Frank A. Ineson, Chief, Division of Forest Economics.

HARDY L. SHIRLEY, Director

Allegheny Forest Experiment Station
Philadelphia, 7, Pa.

THE USE OF AERIAL PHOTOGRAPHS IN FOREST SURVEYS

A Selected Bibliography

1887

Verwendung der ballonphotographie zu forstwirtschaftlichen zwecken, Ztschr.
f. Inftschiffahrt 6(9):285-286.

1893

Wang. Die photogrammetrie oder bildmesskunst im dienste des forsttechnikers.

1913

Dock, Hans. Studien uber die anwendung der stereophotographie zu forstlich-
geodatischen zwecken. Centbl. f. das Gesam. Forstw.

Dock, Hans. Uber versuchsaufnahmen zur erprobung der stereophotogrammetrischer
Messmethode fur zwecke der forst-vermessung. I.S.P. Arch. vol. 4.

Graff, J.H. Photography as applied to forestry engineering. Berlin Mills Co.,
Annual Conf. Woods Dept. 2:35-39.

1916

Bridgeland, M.P. Photographic surveying in Canada. Geog. Rev. 2:19-26.

1919

Clerc, L.P. Estimation of the height of objects by the measurement of their
cast shadows in aerial photography. Brit. Jour. Photography. 6:296ff.
May.

Graham, S. Aircraft and Timberlands. Canad. Forestry Jour. 15:435-438. Nov.

Thelen, Rolf. Aerial photography and national forest mapping. Jour. Forestry,
May, pp.515-522.

1920

Aircraft for forestry purposes. Canad. Forestry Mag. 16(12):589. Dec.

An aerial survey of the forests in northern Ontario. Canad. Forestry Mag.
16(11):516-518.

David, A.N. Aeroplanes and forests. Indian Forester. 46:10-18. Jan.

Elliot, F.A. Airplane patrol of the forests. Amer. Forests 26(16):206-208.
April.

Flying studies of forests and insect damage. Canad. Forestry Mag. 16(10).
Oct.

Hilderbrandt, Adolf. Die bedeutung des luftbildes fur die forstwirtschaft.
Forstl. Wchnschr. Silva. 11(50).

59607

Leavitt, C. Aircraft in forestry work. Canad. Forestry Jour. 16(7):355-356.
July.

Map making from aerial pictures of the forest. Empire State Forester 6(1):
17-19.

Nix, L.A. Forest aerial photography. N.Y. Forestry 7(3):2, 8-11.

Price Bros., Ltd. Aerial system. Canad. Forestry Mag. 16(7):337-339. July.

Wilson, Ellwood. Use of aircraft in forestry. Amer. Forests 26(318):326-328.
June.

Wilson, Ellwood. Use of aircraft in forestry and logging. Canad. Forestry
Mag. 16(10). Oct.

Wilson, Ellwood. The use of seaplanes in forest mapping. Jour. Forestry 18(1):
1-5. Jan.

1921

Andrews, L.A. The airplane's service to forestry. Canad. Forestry Mag. 17(8):
419-422. Oct.

1922

Cameron, Roy D. Aerial forest surveys in Canada. Timberman, Oct., pp. 78ff.

Cameron, Roy D. Forest surveying and reconnaissance. Canada Dept. National
Defense, Report Air Board, pp. 71-75.

Johnston, R.A. and Sharpe, J.F. Report on James Bay forest survey. Canada Dept.
Lands and Forests.

Leckie, Robert. The actual cost of aerial cruising. Canad. Forestry Mag.
Jan.

Wilson, Ellwood. Forest mapping and estimating from aerial photographs. Jour.
Forestry 20(2):113-116. Feb. also, Aviation 12(19):538-539. May.

1923

Aerial survey of the James Bay region, Ontario. Canad. Forestry Mag. 19:738-
741.

Ewald, Erich. Die aufnahme von forstgebeiten durch flugzeugphotographen. Allg.
Verm. Nachr. 35:641-643.

Hugershoff, R. Über die durchführung forstlicher vermessungen mit hilfe des
luftbildes. Forstl. Wehnschr, Silva vol. 50.

Johnston, R.N. Aerial sketch mapping. Canada Dept. National Defense, Report
Civil Aviation, app. D, pp. 48-50.

The value of aerial photography in making topographic maps; aid in forestry
work. Canada Dept. National Defense, Report Air Board. app. I, pp. 56-69.

Wilson, J.A. What greater use of aircraft means in forest survey work, fire protection, and steady development of national activities. Canad. Lumberman. Mar. 15, p.89.

Wilson, Ellwood. Aerial timber cruising. Internatl. Aeronautics. 1:12-19. Aug.

1924

Blanford, H.R. The aero-photo survey and mapping of the forests of the Irrawaddy Delta. Indian Forester 50(12):605-616. Dec.

Jenkins, F.T. Main river concession, Quebec. Report, James D. Lacey co., ltd. Montreal, Canada.

Mattison, G.C. Aerial survey of the Mississippi river delta. Washington, D.C.

Narraway, A.A. Aerial surveys in Canada. Illus. Canad. Forest and Outdoors. 20:329-331. May.

Robbins, C.R. Report to the conservator of forests, Burma.

Wilson, Ellwood. Aerial photography in forestry, logging, and engineering. Paper Indus. Oct. p.1207ff.

1925

Cornwall, G.M. Cruising timber from the air. Timberman 26(9):52-53.

Dock, Hans. Die "terrestrische" und "luftstereophotogrammetrie" und ihre bedeutung fur die forstwirtschaft. Centbl. f. das Gesam. Forstw. heft 7-8.

Jenkins, F.T. Aerial forest mapping. Paper Mill 49:20,22,40,42. Apr. also Illus. Canad. Forest and Outdoors, May, pp.265-266.

Jenkins, F.T. Development of aerial forest surveys. News Letter, May.

Jenkins, F.T. Forest surveys by aircraft is practical Economy. West Coast Lumberman. May, p.28.

Kemp, R.C., Lewis, Scott, C.W., and Robbins, C.R. Aero-photo survey and mapping of the Irrawaddy delta. Burma Forest Bul. No.11.

Krutzsch, Das luftbild im dienste der forsteinrichtung. Tharandter Forstl. Jahrb. 76, bd.3.

Progress in aerial photography. Illus. Canad. Forest and Outdoors 21:54.

Stamp, Dudley. The aerial survey of the Irrawaddy delta forests Burma. Jour. Ecol. 13(2):262-276. Sept.

Sterling, E.A. Aerial forest mapping. South. Lumberman 1577:193-194. Dec. 1.

1926

Aerial mapping of Burmese forests. Engineering 122(3166):360ff. Sept.

Brubaker, W.C. Aerial photographic surveying. Timberman, Aug. pp.41-42.

Jenkins, F.T. Progress in aerial sketching of forest areas. Canada Dept. National Defense, Report Civil Aviation. app. C, pp.81-87.

Scott, C.W. and Robbins, C.R. Report on aerial reconnaissance, stockmapping, and photography of the forests of the Tavoy and Mergui Districts (South Tenasserim Forest Division). Burma Forest Bul. No.13. Feb.

1928

Bourne, Ray. Aerial survey in relation to the economic development of new countries, with reference to an investigation carried out in northern Rhodesia. Oxford Forestry Mem. No.9, 35pp.

Commins, M.J. How aeroplanes are aiding Canadian foresters. Canad. Lumberman June 15, pp.34-35.

Cooper, S.N. Some developments in oblique aerial photography as applied to forest surveying in Canada. Forestry Chron. 4(2):4-10.

Dock, Hans. Stereophotogrammetrie fur zwecke der forstvermessung. Bild. und Luftbw. vol.1.

Jenkins, F.T. Aerial sketching as an aid to forest surveying. Illus. Canad. Forest and Outdoors. Nov. p.651.

Mercer, F.O. Aerial photographic mapping. Timberman, 29(11):30. Nov. 1928.

Narraway, A.M. Aerial surveys in Canada. Empire Forestry Conf. Paper, Australia.

Wilson, Ellwood. The aeroplane and aerial photography in forestry work. Forestry Chron. Dec.

1929

Coyle, Leonidas. Use of airplanes in forestry. Jour. Forestry 27(7):832-835. Nov.

Hope, Robert R. The use of aircraft in forest surveys. South. Lumberman, Dec. 15, p.307.

Lyford, C.A. Cruising and mapping from the air. West Coast Lumberman Nov. p.53.

Mercer, F.O. Mapping from the air and how it is done. Wash.(State) Univ. Forest Club Quart. 8(2):11-17. winter.

Purser, R.C. Use of the aerial camera in mapping. Canad. Woodlands. Rev. 1(1): 7-11. May.

Robbins, C.R. Air survey and forestry. Empire Forestry Jour. 8:205-228. Nov. 2. / (2)

Seely, H.E. Computing tree heights from shadows in aerial photographs. Forestry Chron. Dec. p.24.

Sellar, H.L. Aerial survey in the northland. Illus. Canad. Forest and Outdoors May, p.279.

Shoemaker, Glen W. How crown willamette timber is photographed and mapped from the air. Canad. Woodlands Rev. 1(6):17-18, 32.

Townsend, C.R. New use of aerial photographs in logging operations. Pulp and Paper Mag. Canada. Apr.

1930

Chevalier, Auguste. Les applications de la photographie aerienne a l'etude de la geographie botanique. Compt. Rend. Soc. de Biogeographie. 7(57):64-66. June.

Flint, H.R. Sky maps for the forester. Amer. Forests and Forest Life 36:697-699, 738-739. /((11))

Lyford, C.A. Cruising and mapping. West Coast Lumberman.

Parsons, H.H. Aerial forest surveying. Forestry Chron. Feb. pp.56-60.

Prescott and Taylor. The value of aerial photography in relation to soil surveys and classification. Austral. Council Sci. & Indus. Res. Jour. 3(4):229-230. Nov.

Robbins, C.R. Leve topographique des forets par la methode aerienne. Rev. de Bot. Appl. et d'Agr. Trop. Bul. 106:360-372. Juin.

Rowse, Francis W. Another phase of aviation in Canada. Canad. Air Rev. 3(4): 24, 62. June.

Ryker, H.C. Improved timber-viewing tele-steroscope. Timberman July, p.42.

Tallent. La silviculture, sauvegarde et reconstruction de la foret Francaise. Jour. Geographic Exp. Fran. 120:496-504. Oktober.

Trochain, J. Role de l'aviation dans l'etude des formations vegetales et des forets tropicales. Rev. de Bot. Appl. et d'Agr. Trop. Bul. 106, pp.356-360. Juin.

1931

Aerial surveys. Indian Forester. June, p.308.

Bourne, Ray. Regional survey and its relation to stock taking of the agricultural and forest resources of the British empire. Oxford Forestry Mem. No.13. 169pp.

Cochran-Patrik, C.K. Aerial reconnaissance mapping in northern Rhodesia. Geog. Rev. Apr. p.213ff.

Flint, Howard R. The present and future role of the airplane in forestry. Northwest Sci. 5:25-34. June.

Lane, D.A. Forest air surveys. Austral. Forester. 3(2):18.

Matthews, Donald N. New methods of mapping forest types. West Coast Lumberman. 58(11):23-24. Oct.

Robbins, C.R. An economic aspect of regional survey. Jour Ecol. 19(1):25-33. Feb.

Weber, A.N. Timber type mapping from the air. Jour. Forestry 29(3):426-428. Mar.

1932

Andrews, G.S. The application of aerial photographic methods for forest surveys. Victoria, B.C.

Aviation activities important in region one. Forest Worker, Mar. p.9.

Daugherty, R.A. Aerial forest surveys. Pa. Dept. Forests and Waters, Serv. Letter Mar. 10.

Jacobs, M.R. Die luftaufnahme im dienste der forsteinrichtung mit vorschlagen zu ihrer weiterentwicklung, insbesondere in unentwickelten landern. Mitt. dem Inst. Ausland. und Kolonial. Forstwirt. vol.1. (English summary).

Jemison, G. Aerial photographic mapping. Jour. Forestry 30(6):755-756. Oct.

Moir, Stuart. Aerial forest mapping. Jour. Forestry 30(3): 336-339. Mar.

The use of aerial photographs for mapping. Canada Dep. Int. Topo. Survey Bul. No.62. 80pp.

1933

Chamberlin, J.A. A general comparison of aerial and ground surveys through forest areas. Idaho Forester 15:40-44.

Champion, F.W. Air-survey of forests. Indian Forester 59(1):12-21. Jan.

Davis, W.S. Forest mapping in aerial photography. New Haven, Conn.

Hugershoff, R. Gegenwartiger stand und aussichten der photogrammetrie als hilfs-mittel der forstvermessung und forsttaxation. Photographic Vorratsermittl.

Newmann, Christoph. Beitrag zur vorratsermittlung aus luftmessbildern. Ztschr. f. Weltforstw. 1(2/3):147-158. Nov.-Dec. (Translation by Calif. Forest and Range Exper. Sta.).

Ryker, Harrison. Aerial photography - method of determining timber species. Timberman 34(5):11-17. March.

Andrews, G.S. & Trerey, L.G. The use of aerial photographs in forest surveying, part one - photogrammetric methods. Forestry Chron. 9(44):33-53. Dec.

Wilcox, F.R. Practical means of using aerial photography in woods operations. Pulp and Paper Mag. Canada. 34(2):134-138. Feb.

1934

- Andrews, G.S. Air survey and forestry, developments in Germany. Forestry Chron. 10(2):91ff. June.
- Forest service to survey remote areas from airplanes. Off. Information, Press Serv. May 4, p.1.
- Foster, Ellory. The use of aerial photographs in mapping ground conditions and cruising timber in the Mississippi river bottomlands. U.S.F.S. South. Forest Exper. Sta. Occais. Paper No.37. Nov. 7pp.
- Heske, F. Air survey in the service of forest management with recommendations for its further development particularly in undeveloped countries. Jour. Forestry 32(1):111-113. Jan. (this is a book review). review by H.R. Jacobs.
- Miller, R.E. Aerial surveys in national forests. U.S. Air Serv. 19(5):19-20. May.
- Minutes of staff meeting, eleventh. U.S.F.S. South. Forest Exper. Sta. May 2, mimeog copy.
- Proceedings of the fourth silvicultural conference, Dehra Dun, pp.1-318.
- Robbins, C.R. Northern Rhodesia; an experiment in the classification of lands with the use of aerial photographs. Jour. Ecol. 22(1):88-105. Feb.
- Seely, H.E. Aerial photography in forest surveys. Empire Forestry Jour. 13(2): 244-247.
- The use of aerial photographs in type-mapping. U.S.F.S. South. Forest Exper. Sta. Notes, No.7.

1935

- Air survey situation, B.C. forest surveys. MS, BCFS file:0118875/105, Feb.
- Andrews, G.S. Tree-heights from single aerial photographs. MS, BCFS file: 0118875/72.
- Canterbury, M.D. Aerial photographs as an aid to the forester. Conn. Forester p.8.
- Carlier, Andre. Aerial photo-topography and utilization of colonial forests. Rev. Intntl. de Bois 13:42-52. (Translated U.S.D.A. - F.S.)
- Craig, R.D. Forest surveys in Canada. Forestry Chron. 11(3):182. Sept.
- Heske, F. Use of aerial photography for forest management. Pulp and Paper Mag. Canada 36:387-388. July (translated by Wilson, Ellwood).
- Nakayama, H. Stocking of forests from air photographs. Forestry Chron. Sept., p.204ff.
- Peters, F.H. An aerial portrait of Canada. Illus. Canad. Forest and Outdoors 31(3):825.

- Rothery, J.E. Use of vertical aerial photographs in forest mapping and timber estimating. Jour. Forestry 33(6):587-588. June.
- Secly, H.E. The use of air photographs for forestry purposes. Forestry Chron. 11(4):287-293. Dec.
- Wilcox, F.R. An introduction to mapping methods as used in map compilation from aerial photographs. Forestry Chron. 9(4):294. Dec.
- Wilson, C.C. Aerial reconnaissance in the forests of Madra. Indian Forester 61(12):765. Dec.

1936

- Andrews, G.S. The use of air photographs in the survey of the Nimpkish forest. Forest Surveys Division, Victoria, B.C.
- Andrews, G.S. Tree-heights from air photographs by simple parallax measurements. Forestry Chron. 12(2):152-197. June. (Errata for above, Forestry Chron. 12(3):342. Sept.)
- Brown, W.W. Area measurements by use of aerial photography. Photogram. Engineer. 2(1):19-22.
- Hollerwoger, F. Aerial photographs in forest mapping. In Notes on the 25th meeting of the union of higher forest officials in Netherlands East Indies. Techtone 29(11/12):842-930.
- Moir, Stuart. Comments on the use of aerial photography for forestry purposes in the United States. Forestry Chron. 12(1):61-62. Feb.
- Wilcox, F.R. Gatincau scale ratiometer for use with vertical photographs in determining scale and ratio. Forestry Chron. 12(2):198-201. June. also Jour. Forestry 34:1049-1053. Dec.

1937

- Ahrens, T.P. The application of aerial photographs to land use problems. Land Policy Circ. Sept. p.12.
- Air photos cover eighth of country. Forest Leaves July, p.16.
- Air surveys of the forests. Illus. Canad. Forest and Outdoors. 33(6):176. June.
- Baird, V. jr. Determining tree and grove conditions by use of air maps. Calif. Citrog. 22:440. July.
- Bennett, C.W. Aerial surveys in Oregon. Oreg. State Planning Bd. mimeog.
- Canada leads world in air survey of woods. Canad. Lumberman 57(16):42. Aug. 15.
- Craig, R.D. Estimating amount of timber from aerial photographs. Canad. Lumberman 57(4):18. Feb.
- Dalke, Paul D. The cover map in wildlife management. Jour. Wildlife Managt. 1(3/4):100-105.

Kelley, J. A timber survey controlled by aerial photographs. Photogram. Engineering 3(4).

Reading, O.S. Tree-heights from aerial photographs by simple parallax measurements. Photogram. Engineering 3(1):50. (this is a review).

Tree-heights from air photographs by simple parallax measurements. Empire Forestry Jour. 16:135-171. (this is a review).

Wilcox, F.R. and Martineau, L. A suggested procedure for the use of vertical aerial photographs in forest, land, and recreational classification in Quebec Province. Pulp and Paper Mag. Canada 37(11):719-724. Dec.

Wilcox, F.R. Proceedings of the C.S.F.E., Report of the Sub-Committee on Surveys. Forestry Chron. 13(1):310-313. Feb.

Yule, J.B. Planimetric and cover map compilation from single-lens vertical photography by the radial method. Missoula, Mont.

1938

Commins, M.J. Mapping by aeroplane; place of aerial sketching in forest survey and management. Pulp and Paper Mag. Canada 39:685-686. Sept.

Langballe, N.B. and Fogh, I.F. Improved methods of procedure in cruising for operating purposes. Forestry Chron. 14(2):84-87. Nov.

Leely, H.E. Air Photographs as used by the dominion forest service. Canada Dept Mines and Resources, mimeog. also Jour. Forestry 36(10):1033-1044. Oct.

Southern, H.W. and Lewis, W.A.S. Infra-red photograph of arctic birch forest and fells. Jour. Ecol. 26:328-331.

Tichy, Al. Hynocjsi stav pomzivani fotogrametrie v lesnictvi. Vest. Cesko Akad. Zemedelski 14(4/5):312-322. (translated title, Present status of photogrammetry in forestry, with German summary).

White, Z. Waters. Aerial photography and its use in forest management. Yale Univ. School Forestry, unpublished M.A. thesis.

Wilcox, F.R. Aircraft and aerial photography; valuable aids to Canadian forester. Fairchild Aviation News, 3(5). Sept.

Wilcox, F.R. The use of aerial photographs and aircraft in woods operations. Jour. Forestry 36(10):1033-1044. Oct. also Photogram. Engineering 6(3):138-143. 1940.

Wilson, Richard E. Buffed celluloid broadens use of aerial photographs. Jour. Forestry 36:1245-1246. Dec.

Guislain, A. Aerial photography and aviation in the service of forestry. Rev. des Eaux et Forêts 76:485-492. (translated title).

Aviation employed in the reconnaissance of colonial forests. Rev. Internatl. des Prod. Colon. 13:224-226. (translated title).

Asch, H.P.D. van and Wickett, H.C. Discussion on aerial surveying in its relation to forest reconnaissance. New Zeal. Jour. Forestry 4:141-147.

1939

Abell, C.A. A method of estimating area in irregularly shaped and broken figures. Jour. Forestry 39:344-345.

G.F. ^{R.C.}
Burks and Wilson. A vegetation inventory from aerial photographs. Photogram. Engineering 5(1):30ff.

Cansdale, C.S. Infra-red films for tropical forest photography. Empire Forestry Jour. 18:106-107. July.

Ehrhardt, E.O. The use of aerial photography in forest management. Pa. Dept. Forests and Waters, Serv. Letter 10(3):35-39, 47. Apr.-May.

Eliot, Leon. Analysis of error present in planimetering prints. Photogram. Engineering 5(2).

Ives, R.L. Infra-red photography as an aid in ecological surveys. Ecol. 20: 433-439. July.

Wilcox, F.R. Possibilities of Stratosphere and substratosphere in the administration of forest lands. Photogram. Engineering 6(4), 1940. also Jour. Forestry 37:441-444.

Wilson, ^{R.C.} Preliminary instructions for vegetation type map and cultivated land classification in California forest survey. U.S.D.A. Flood Control Advisory Committee. App. B, 8 pp.

1940

Andrews, G.S. Notes on interpretation of vertical air photographs. Forestry Chron. 16(3):202-215. Sept.

Braithwaite, J.D. Canadian aerial forestry for Burma. Indian Forest Rec. New Series, Silv. 4(1). (reviewed Empire Forestry Jour. 19(2):295.) 96pp.

Lovejoy, Omar. A cover map based on air photographs, Emmet County, Michigan. Mich. Acad. Sci., Arts, and Letters, Papers 26:407-410.

Newman, S.A. The grid-area method for determining areas of irregular figures. Jour. Forestry 38:632-635.

Seely, H.E. Photogrammetric equipment employed in interpretation of aerial photographs. Pulp and Paper Mag. Canada 41:731-732. Oct. also Dominion Forest Service, mimeog. 5pp.

Seely, H.E.
Plotting the forest map from vertical air photographs, Dominion Forest Service Nov. 22, 3pp. mimeog. also Forestry Chron. 17(2):79-80. June, 1941.

The duoscope. Dominion Forest Service. mimeog. 2pp.

1941

- Krueger, T. Timber cruiser goes modern. Amer. Forests 47:426-427. Sept.
- Krueger, T. Use of aerial photographs for timber surveys in the Rocky Mountain region. Jour. Forestry 39(11):922-925.
- Lee, Howard C. Aerial photography - a method for fuel type mapping. Jour. Forestry 39(6):531-533. June.
- Meyer, Jurgon. Der einsatz des flugzeugs bei kunftiger forstlicher forschung und planung. Forstarchiv. 17(7/8):123-130.
- Mottishaw, James S. Aerial forest surveys in British Columbia. Univ. (State) Wash. Forest Club Quart. 15(3):18-21. Spring.
- Wiescheugel, E.G. An economical forest inventory method. Jour. Forestry 39(8):672-676. August.

1942

- Air photographs of Canada's forests. Jour. Forestry 40:268. Mar.
- Burwell, Robert. Application of photogrammetry to forestry. Photogram. Engineering 8(1):18-21.
- Kramer, P.R. and Sturgeon, E.E. Transect method of estimating forest area from aerial photographic index sheets. Jour. Forestry 40:693-696. Sept.
- Lesco, S.T.B. Air photographs and forest sites - part one. Forestry Chron. 18(3):129-144. Sept.
- Lesco, S.T.B. Air photographs and forest sites - part two. Forestry Chron. 18(4):169-181. Oct.
- Pospisil, Rudolf. Letocka fotogrametrie v lesnictvi. Lesnicka Prace 21(6):237-247. June (German summary).
- Rogers, E.J. Aerial photographs in timber estimating. Jour. of Forestry 40(5):430-432. May.
- Rogers, E.J. Wilkes-Barre technique of estimating timber from aerial photographs. U.S.F.S. Allegheny Forest Exper. Sta. unpublished manuscript, Dec. 21, file, R(V)-AL, Products Supplies, Publications.
- Seely, H.E. Tree heights from shadows. Canada Dept. Mines and Resources, Aerial Forest Research Note, No. 1. also Photogram. Engineering 8(2). 10pp.
- Von Loe. Das luftbild als hilfsmittel zur losung geigenwartiger und kunstiger forstlicher aufgaben. Deut. Forstw. 24:125-127. Mar. 27.
- Wieslander, A.E. and Wilson, R.C. Classifying forests and other vegetation from air photographs. Photogram. Engineering 8(3):203-215.

Wieslander, A.E., Jenson, H.A., Wilson, R.C., and Burks, G.F. Proposed plan for the vegetation phases of the forest survey in California and western Nevada. U.S.F.S. Calif. Forest and Range Exper. Sta. unpublished manuscript.

1943

Bryan, Milton M. Area determination with the modified acreage grid. Jour. Forestry 41:764-766. Oct.

Gault, G.W. Aerial photograph distance scale. Mil. Engineering 35(211):239. May.

Kelsh, Harry T. Hunting rubber from the air. Photogram. Engineering 9(4):202-211.

Laer, von. Die forstliche erkundung inden besetzten ostgebieten mit besonderer berucksichtigung der luftbilderkundung. Deut. Forstwirt. 25:113-115. Mar.

Miller, C.I. Three-dimensional photography for the forester. Jour. Forestry 41(6):406-410. July.

Smith, A.A. Aerial photography and its uses in timber inventories. Pulp and Paper Mag. Canada 44:457-458. May. also La Societe Canad. de Photogram. Bul. No. 1. /()

The survey of merchantable saw-timber and cordwood tracts, U.S.F.S. Allegheny Forest Exper. Sta. August 18, mimeog.

no date

Aerial forest surveys. Pa. Dept. Forests and Waters Bul. 39:79-85. (C.P. Wilbur).

Das flugbild in dienste forsteinrichtung, Sec. Photo-mapping U.S.G.S. files. (translated by O.S. Reading).

Forest engineering from the air. Lacey-Fairchild circ. N.Y.

Letecka fotogrametrie v lesnictvi. Lesnicka Prace 21(6):237-247. (translated title, aerial photography in forest management).

Rikken, L.H. Photogrammetrie en boschstatistiek. Nederland. Beschouw. Tijdschr. 10(6):224-233. (translated title, photography and forest surveys).

Slevin, J.H. Aerial Mapping in inland empire. Timberman 29(4):184-188. 1928

Stanton, Bruce T. Aerial photography and photogrammetry in forestry and allied fields. Syracuse Univ. unpublished M.A. thesis. June, 1942.

Wood and Mackay. Report of test flight in British Guiana for purposes of preliminary test as to the feasibility of air survey in forest type mapping and topography.

A method of forest area determination. U.S.F.S. Allegheny Forest Experiment Sta. unpublished manuscript.

AUTHOR INDEX

- Abell, C.A. 1939
Ahrens, T.P. 1937
Andrews, G.S. 1932, 1934, 1935, 1936(2),
1940
Andrews, L.A. 1921
Anonymous. 1887, 1920(4), 1923, 1925,
1926, 1931, 1932(2), 1934(4), 1935,
1937(4), 1938, 1940, 1942, 1943, no
date(4)
Asch, H.P.D.van. 1938

Baird, jr., V. 1937
Bennett, C.W. 1937
Bourne, R. 1928, 1931
Blanford, H.R. 1924
Braithwaite, J.D. 1940
Brown, W.N. 1936
Bridgeland, M.P. 1916
Brubaker, W.C. 1926
Bryan, M.M. 1943
Burks, G.F. 1939, 1942
Burwell, R. 1942

Cameron, R.D. 1922(2)
Cansdale, C.S. 1939
Canterbury, E.D. 1935
Carlier, A. 1935
Chamberlin, J.A. 1933
Champion, F.W. 1935
Chevalier, A. 1930
Clerc, L.P. 1919
Cochran-Patrick, C.K. 1931
Commins, M.J. 1928, 1938
Cooper, S.N. 1928
Cornwall, G.M. 1925
Coyle, L. 1929
Craig, R.D. 1935, 1937

Dalke, P.D. 1937
Daugherty, R.A. 1932
David, A.N. 1920
Davis, W.S. 1933
Dock, H. 1913(2), 1925, 1928

Ehrhardt, E.O. 1939
Eliel, L. 1939
Elliot, F.A. 1920
Ewald, E. 1923

Flint, H.R. 1930, 1931
Fogh, I.F. 1938

Foster, E. 1934

Gault, G.W. 1943
Graff, J.H. 1913
Graham, S. 1919
Guislain, A. 1938

Heske, F. 1935
Hilderbrandt, A. 1920
Hollerwoger, F. 1936
Hope, R.R. 1929
Hugershoff, R. 1923, 1933

Ives, R.L. 1939

Jacobs, M.R. 1932, 1934
Jemison, G. 1932
Jenkins, F.T. 1924, 1925(3), 1926, 1928
Jensen, H.A. 1942
Johnston, R.A.N. 1922, 1923

Kelley, J.A. 1937
Kelsh, H.T. 1943
Kemp, R.C. 1925
Kramer, F.R. 1942
Krueger, T. 1941(2)
Krutzsch. 1925

Laer, von. 1942, 1943
Lane, D.A. 1931
Langballe, N.B. 1938
Leavitt, C. 1920
Leckie, R. 1922
Lee, H.C. 1941
Lewis. 1925
Lewis, W.A.S. 1938
Losee, S.T.B. 1942(2)
Lovejoy, O. 1940
Lyford, C.A. 1929, 1930

Mackay. no date
Martineau, L.A. 1937
Matthews, D.N. 1931
Mattison, G.C. 1924
Mercer, F.O. 1928, 1929
Meyer, J. 1941
Miller, C.I. 1943
Miller, R.E. 1934
Moir, S. 1932, 1936
Mottishaw, J.S. 1941

Nakayama, H. 1935

Narraway, A.M. 1924, 1928
Newman, S.A. 1940
Newmann, C. 1933
Nix, L.A. 1920

Parsons, H.H. 1930
Peters, F.H. 1935
Pospisil, R. 1942
Prescott. 1930
Purser, R.C. 1929

Reading, O.S. 1937, no date
Rikken, L.H. no date
Robbins, C.R. 1924, 1925, 1926, 1929, 1930,
1931, 1934
Rogers, E.J. 1942(2)
Rothery, J.E. 1935
Rowse, F.W. 1930
Ryker, H. 1930, 1933

Scott, C.W. 1925, 1926
Seeley, H.E. 1929, 1934, 1935, 1938,
1940(2), 1942
Sellar, H.L. 1929
Sharpe, J.F. 1922
Shoemaker, C.W. 1929
Slevin, J.H. no date
Smith, A.A. 1943
Southern, H.W. 1938

Stamp, D.L. 1925
Stanton, B.T. no date
Sterling, E.A. 1925
Sturgeon, E.E. 1942

Tallent. 1930
Taylor. 1930
Thelen, R. 1919
Tichy, A. 1938
Townsend, C.R. 1929
Trochain, J. 1930
Troy, L.G. 1933

Wang. 1893
Weber, A.N. 1931
White, Z.W. 1938
Wickett, H.C. 1938
Wieschengel, E.C. 1941
Wieslander, A.E. 1942(2)
Wilbur, C.P. no date
Wilcox, F.R. 1933, 1935, 1936, 1937(2),
1938(2), 1939
Wilson, C.C. 1935
Wilson, E. 1920(2), 1922, 1923, 1924,
1928, no date
Wilson, J.A. 1923
Wilson, R.C. 1939, 1942(2)
Wilson, R.E. 1938
Wood. no date
Yule, J.B. 1937

ADDITIONS TO BIBLIOGRAPHY

1921

Wilson, J.A. Flying services rendered to Canada's forests. Can. For. Mag. 17:525-527.

1922

Aerial Mapping, Admin. Report, Dept. Lands and Forests, Ontario. pp. 222-233.

1925

Barrington, A.H.M. Air survey, Admin. Report, Working Plans Circle, Burma, pp.1-6.

Cooper, W.S. Experiments in the study and mapping of vegetation by airplane photography. Annual meeting American Assoc. for Advancement of Science, Kansas City, 1925-1926.

1926

Cain, Stanley A. Airplane photography and ecological mapping. Proceedings of Indiana Acad. of Science. 36:269-272.

Giffen, H.D. Aerial surveys in logging operations. Lumber Trade Jour. 90(9):29.

Wilson, E. Aerial survey and forest conditions. Proceedings first International Silvicultural Conference. 3:222-237.

1927

Air-survey in the Irrawaddy delta. Indian Forester. 53:421-423.

Commins, M.J. Value of aerial sketch maps. Canad. Lumberman 47:76. March, 15.

Wilson, Ellwood. Growing use of aeroplanes in forest survey and fire protection. Canad. Lumberman 47:133-134. Aug., 1.

1928

Purser, R.C. Making maps from the air. Illus. Canad. Forest and Outdoors 24:317-318.

Satisfactory results obtained from aerial photography. Illus. Canad. Forest and Outdoors 24:57-58.

1929

Heintzelman, B.F. Southeastern Alaska aerial surveys. Timberman 31(2):162.

Mogg, A.O.D. A preliminary account of the flora of Pretoria in relation to the geology. Comptes Rendu, 15 Int. Geol. Cong. S.Africa, 2:651-669.

Richardson, A.H. Air operations in Ontario. Illus. Canad. Forest and Outdoors, 25:372-374.

1930

Bourne, Ray. Air survey within the empire. Air Annual of the British Empire, 2:15-21.

Chevalier, Auguste. L'aviation au service de l'agriculture tropicale et de la géographie botanique. Revue de Botanique appliquée et d'Agriculture Tropicale. Bul 106:354ff.

Danielson, Fritz. Bildkartor för skogsmätningar. Svenska Skogsvårdsföreningens Tidskrift, 28(3):426-441. translated title: aerial photographs in forest mensuration. German summary.

W., R. Comments on (1) C.R. Robbins. Air survey and forestry, 1929. (2) Auguste Chevalier. L'aviation au service de l'agriculture tropicale et de la géographie botanique, 1930. Int. Review of Agriculture, part one, Monthly Bull. of Agri. Science and Practice, 21(10):397-398.

1932

Miller, J.N. A duck census from the air. Amer. Forests, Apr. pp.229-230.

1933

Hagberg, Nils. Flybilder och flybildlasning. Svenska Skogsvårdsföreningens Tidskrift, 31(3):335-373. translated title: aerial photographs and the interpretation of aerial photographs, summary in German.

Hustead, A.M. Park planning by aerial survey. Parks and Recreation, 17(1):3.

Jenkins, F.E. Aerial fire protections and photography. Forestry Chron. 9:27-31, June.

Sanford, A.R. Aerial photography, its use and application to forest management. unpublished M.A. thesis. Syracuse Univ.

Schaeffer, Leon. Photographie aérienne et mode de traitement. Revue des Eaux et Forêts, 71(4):257-260. translated title: aerial photography and method of treatment.

1934

Olsen, C.F. Review of: Nils Hagberg. Aerial photographs and the interpretation of aerial photographs. Jour. Forestry, 32(9):1025-1026.

An aerial photographic survey, Science, 79(2038):51.

Hemming, H. The use of air photography for surveying and economic development. Photog. Jour. Jan.

1935

- Bourne, Ray. Air survey. Paper Bot. and Forestry Section, Brit. Assoc. Norwich.
Report on the mapping of the Pas lands from air photographs. unpublished report
Dominion Forest Service. Ottawa.
- Steinberg, S.S. Mapping from the air. Scientific Month. 40(4):363-366.
- Underhill, Harold P. Notes on reading air photographs. Papers Mich. Acad. Science
Arts and Letters. v.21.

1936

- Ahrens, T.P. The utilization of aerial photographs in mapping and studying land
features. Resettlement Administration, Land Utilization Division, Land Use
Planning Pub. 6. 27pp.
- Aviation in the planning and organization of forests, Leningrad, translated title.
see forestry abstracts 1:106-107.
- Duplaquet, L. Prospections aerienne au-dessus de la foret equatoriale. Revue des
Eaux et Forets, 74(9):795-802.

1937

- Bell, W.B. Methods in Wildlife Censuses. Jour. Amer. Stst. Assoc., 32:537.
- Abercrombie, Patrick. Memorandum on a national survey of rural resources. Present.
to the Prime Minister, Oxford Univ. Press, 39pp. (by Ray Bourne).

1938

- Glover, P.C. Utility of aerial photographs as an aid to botanical survey. Jour.
South African Botany, 4:2.
- Lowdermilk, W.C. Use of aerial mapping in soil conservation studies. Civil Engin.
8(9):605-607.
- Phinney, T.D. and Truscott, C.J. Aerial surveying studied. Daily News Intermountain
Region, U.S.F.S. Mar 25.
- Rumaggi, L.J. Photogrammetric Methods and equipment. Corps of Engineers, U.S.A.
Wright Field, Dayton, Ohio. 12pp.
- Aerial survey handbook, U.S.D.A. F.S., Div. of Engineering. 60pp.
- Supplement to aerial survey handbook, U.S.D.A., F.S. Region 9.
- Whitmore, G.D. Photogrammetric mapping under the T.V.A. 2 Regional Conference on
Surveying and Mapping. Univ. of Louisville, mimeo. 33pp.
- Wilcox, F.R. Aerial photogrammetry and aircraft in woods operations. Canad.
Lumberman, 58(18):23ff.
- Wildlife census methods applicable to national parks and monuments. National
Park Service, memo to field officers, Sept 17.

1939

Hall, William. Plotting vertical air photographs by radial intersection. Air Survey Section. B.C. Forest Service, Victoria, B.C. (expansion and revision by G.S. Andrews, unpublished). Feb.

Wieslander, A.E. Utilization of air photographs in the vegetation survey of California and Western Nevada. Chronica Botanica, 5(4/6):423-425.

1940

Kinlock, J.B. Mapping vegetational types in British Honduras from aerial photographs. The Caribbean Forester, 1(2):1-4.

Smith, Helen. Forest Service uses of aerial photographs. U.S. Air Services, 25(8):15-16, 28.

Report of Surveys and maps conference, U.S.D.A., F.S. Denver, Colo., June 24-29. 205pp.

1941

Dalke, Paul D. Development of a statistical system of cover-mapping applicable to Missouri wildlife range. Jour. of Wildlife Management, 5(1):103ff.

Johnston, R.H. Aerial forest survey. Canad. Lumberman, 61(12):12.

1942

Ohio forest survey, a manual of procedure. Ohio Agri. Exper. Sta. Forestry Publication 71.

Jones, B.G. Preliminary report committee of nomenclature Amer. Soc. of Photogrammetry. Photogrammetric Engineering. Nov.-Dec.

1943

Bernier, G.H. Aperçu Photogramétrique. La Société de Photog. Bul. 4, Feb.

Bernier, G.H. Notes sur quelques appareils reconstituteurs, La Société de Photog. Bul. 2. Jan.

Gault, George W. Aerial photograph distance scale. Military Engin, 35(211):239. May.

Hall, W.C. Map grids and templates. Military Engin. Apr.

Rivard, J.G. Cartes aéroforestières. La société Photog. Bul 3, Jan.

Sonley. Report on aerial photography in connection with forest surveys. Memo prepared for Sisam of I.F.B. Canad Soc. of Foresters file 49403 For.

1944

- Brown, K.B. Postwar survey problems in New Brunswick. Canad. Surveyor. Apr.
- Buttrick, P.L. The forests of Rhode Island. Amer. Forests, 50(9):440-442, 446. Sept.
- Colwell, Robert N. The determination of vegetation types from aerial photographs. Paper presented 29 Ecological Society and Botanical Society, Cleveland, Sept. 14.
- Farr, Robert N. Aerial photographs for agricultural surveys. Science, 100(2597): 10, Oct. 6.

No Date

- The Higgins patented aerial survey camera and method. Geographic Dept. Higgins Industries, New Orleans, La.
- Newman, L.E. Mapping of windblown timber by autogiros. U.S.F.S. Alleg. Forest Exper. Sta. unpublished report, flood control file.
- Sonly, G.R. Aerial photographic aids available to the forester. La Societe Photog. Bul. 6. 1944.
- Value of aerial survey. Canad. Lumberman, 61:17.
- Woodward, Louis A. Aerial Photography as a map substitute. Photogram. Engin. June, 1944.

General Sources

- Bibliography of Photogrammetry, Photogrammetric Engineering, 2(4), 1936.
- Bibliography of aeroneutics, part 30, aerial photography. W.P.A. March, 1939.
- Selected Bibliography of north american forestry, U.S.D.A. Miscel. Pub. 364, 1940.
- Bibliography on the interpretation of aerial photographs, Bul. of Geolog. Society of America. 54(8):1195-1210, August 1. by Genevieve C. Cobb.
- Monthly Bibliography of agriculture, U.S.D.A. monthly release.
- Forestry Abstracts, I.F.B. Oxford, quarterly release.
- Biological Abstracts, monthly release, Union of Amer. Biological Societies.

